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# Personal Observations on the Treatment of Gastroptosis

BY

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The term gastroptosis is used by some writers to indicate those cases of abdominal ptosis in which the most prominent symptoms are due to the displaced stomach, while others make it synonymous with splanchnoptosis and enteroptosis.

It is in the former sense that it is used in this paper, although the treatment in general is applicable to all cases of splanchnoptosis.

In the time allotted to this paper, it is not possible to consider the etiology of this troublesome condition or to deal exhaustively with the treatment. It is therefore my purpose to refer briefly to personal experiences, hoping that the discussion will bring out points which will be helpful to all of us.

That the methods are not entirely satisfactory is shown by the frequent return of symptoms even after thorough and careful treatment. This is in part due to the nature of the disease, for there is a constant tendency to recurrence.

The general indications for treatment are to improve the nutrition and build up the nervous system, overcome auto-intoxication, and restore to the organs their normal functions; and this is best brought about by replacing displaced viscera and maintaining them in their normal position by mechanical support until increased weight and nerve and muscle tone take place.

For convenience, these cases are classified as those suited for ambulatory treatment, those requiring rest in bed, and those requiring surgical treatment.

In the first class, we are obliged to place most dispensary patients and many of our private patients who must follow their vocations without interruption, or who have not advanced to a stage of deterioration justifying the more rigid treatment.

When such a patient seeks advice, the various available therapeutic resources are considered, and from them are chosen those that seem desirable.

First comes diet, then mechanical support, rest, massage, exercise, hydrotherapy, electricity and drug treatment.

The diet must be varied somewhat, depending upon the abnormalities of gastric secretion and the degree of motor insufficiency, but for the majority of cases the following diet, which is a slight modification of Lockwood's table, is quite satisfactory.

Breakfast, 8 a. m. Cocoa, cereal with cream and sugar, chopped beef with toast, or soft-boiled eggs, roll, butter and a little marmalade.

11.30, crackers with some preparation of fermented milk (lactic acid).

1 p. m., lunch. Fish or chicken or bird, bread and butter, one starchy and one green vegetable, farinaceous dessert such as cornstarch, farina or rice pudding, glass of milk.

4.30, a sandwich, or the remains of the farinaceous pudding, or junket or malted milk.

7 p. m., a meal like that at 1 o'clock.

9.30, a meal like that at 4.30.

Throughout the day the patient takes one-half pint of rich cream. This may be mixed with the food in any way that is considered desirable. No fruit is allowed and no red meat, except that prescribed for breakfast.

As soon as the patient is able to take this without discomfort, the caloric value of the diet is increased by using more cream and butter. After six or eight weeks, it is usually found necessary to modify our method.

Some form of abdominal supporter is recommended. If we are dealing with a flat or retracted abdomen, the adhesive plaster belt (either that of Achilles Rose or one of its modifications) is applied.

If the abdomen is pendulous or prominent, an ordinary elastic belt will suffice. In either case care is taken to apply it in such a way that the line of maximum pressure is just above Poupart's ligament and the iliac crests. When properly adjusted, it is interesting to note the improvement in appetite and the digestion and the slowing of pulse rate.

Before breakfast or before the forenoon lunch, a spinal and abdominal spray of hot and then cold water is given, followed by a brisk rubbing, except in those cases wearing the adhesive plaster belt.

Exercise is not allowed in the beginning, but after a few weeks is found helpful. Special exercises are ordered to develop and strengthen the abdominal muscles. It is not necessary to describe these in detail, but those who are interested will find the little "Manual of Exercises" written by Muller very useful.

Intragastric electricity and the high frequency current do good in many cases, but whether through psychic effect or because of general tonic properties, I have not been able to determine.

The drug treatment is symptomatic and simple. The patients are examined frequently, and as soon as they show symptoms of indigestion, evidenced by bad breath, eructations, gaseous distension, indicanuria† or abdominal discomfort, it is controlled by the use of calomel, castor oil, duodenal irrigations (normal saline), colon irrigations (ichthyol solution a drachm to the quart), lavage (acid salicylic gr. 20, acid boric 1 dram, water 1 quart), lactic acid cultures, intestinal antiseptics, or perhaps one of the vegetable ferments.

A tonic is usually prescribed unless there is reason to believe that it will interfere with digestion.

Cases in which the vitality is not too much impaired usually do very well under this treatment, gaining in weight and vigor, with a corresponding improvement in subjective symptoms. Some patients are not able to follow this regime even in a modified form, as they quickly develop indigestion, which leaves them worse than when they started.

One learns by experience to determine with a fair degree of accuracy the cases that are apt to go wrong, and for these it is customary to combine with forced feeding, a rigid rest cure under the daily supervision of the physician and, when possible, aided by a nurse who has been especially trained for this work.

These patients do better if taken away from their friends and placed in an institution where the environment is cheerful and the food is specially prepared for the individual case. Under these conditions, the caloric method of feeding is used. A liberal diet is prescribed unless limited by abnormalities of gastric secretion, but we rule out soups and broths, fruits and berries, most of the green vegetables, the starchy vegetables which are particularly prone to ferment, fresh breads, the meats which are most difficult of digestion, rich desserts, and usually alcoholic stimulants.

For the first three or four days, they are kept on a very light diet and are given calomel, salines, castor oil or colon irrigations, after which they are started on about 1,800 calories daily, quickly increasing to 2,400 or 3,000 calories.

In the majority of cases 3,000 calories is then made the minimum amount, and from day to day the diet is increased, as the condition of the patient indicates. Some days 5,000 to 6,000 calories will be given, perhaps to drop back the following day because of abdominal distention or other symptoms of indigestion.

Without special instructions, in order to get the number of heat units prescribed, the patients take liberally such foods as bread, butter, rice, cereals, cream, bacon and olive oil, as otherwise they find it difficult to obtain the proper number of heat units.

The need of medication increases with the increased quantity of food, but, by careful watching, the diet can be forced for some time without trouble, so that it is not uncommon to have the patients gain a pound or more daily.

The various therapeutic resources mentioned above are used and, in addition, massage is recommended, particular attention being given to the abdomen.

Hot compresses or poultices applied over the abdomen during the active stage of digestion increase abdominal circulation and diminish discomfort.

Hypodermics of some soluble form of iron or glycerophosphates are given.

It is seldom necessary to continue this regime for more than four to six weeks.

Following a course of treatment, it is advisable to keep the patients under observation for a long time, as they are apt to relapse as a result of work, worry and dietetic errors.

Occasionally in stubborn or relapsing cases, we have to consider the advisability of surgical treatment. The operation of gastropexy has its legitimate field of usefulness and some remarkable results have been obtained by this method of treatment.

Special operations have been described by:

Duret (suture of the stomach to the abdominal wall).

Davis (suture of the lesser omentum to the parietal peritoneum).

# GENERAL DIET TABLE INDICATING FOODS PRESCRIBED AND THEIR COMBINATION IN CALORIC METHOD OF FEEDING. Sample Diet.

| SOUPS | Daily amount |
|---|---|
| *Broths | |
| Beef | |
| Veal | |
| Mutton | |
| Chicken | |
| Bouillon | |
| Consommé | |
| Ox-tail | |
| *Purees & Creams | |
| Barley | |
| Rice | |
| Pea | |
| Bean | |
| Potato | |
| Tomato | |
| Asparagus | |
| Onion | |
| Celery | |
| *Thick Soups | |
| Vegetable | |
| Noodle | |
| Julienne | |
| Vermicelli | |
| Calf's Head | |
| Mock Turtle | |
| Mulligatawney | |
| Clam Chowder | |
| Fish Soups | |
| ** FISH | |
| Boiled | |
| Broiled | |
| Baked | |
| Sole | |
| German Carp | 270 c. |
| Weakfish | 245 c. |
| Bass | 230 c. |
| Trout | 275 c. |
| Chicken Halibut | 475 c. |
| Flounder | 430 c. |
| Sheepshead | |
| Pike | 260 c. |
| Bluefish, lean part | 520 c. |
| Shad, lean part | 420 c. |
| ** OYSTERS | |
| Raw<br>Broiled<br>Stewed | 225 c. |
| Baked in Shell | |
| * Clams | |
| Crabs | |
| Lobsters | |
| Shrimps | |
| Terrapin | |
| ** POULTRY | |
| Chicken | 765 c. |
| *White Meat* | |
| Squab | 1205 c. |
| Turkey | 1060 c. |
| Guinea Fowl | 765 c. |
| * GAME | |
| Venison | |
| Rabbit | |
| Wild Duck | |
| Birds | |

| MEATS | Daily amount |
|---|---|
| *Boiled | |
| Stewed | |
| Roasted | |
| Broiled | |
| Hashed | |
| Beef | 910 c. |
| Mutton | |
| Mutton Chops | |
| Lamb<br>Lamb Chops | 860 c. |
| Veal | |
| Sweetbreads | |
| Brains | |
| Liver | |
| Kidneys | |
| Pork | |
| Bacon | 2715 c. |
| Ham | 1635 c. |
| Dried Beef | |
| Corned Beef | |
| Sausages | |
| Pigs' Feet | |
| Tongue | |
| Tripe | |
| ** EGGS | 720 c. |
| Whites | 250 c. |
| Yolks | 1705 c. |
| Soft Boiled | |
| Poached | |
| ** MILK | |
| Unskimmed | 310 c. |
| Skimmed | 165 c. |
| Buttermilk | 160 c. |
| *Boiled Milk* | |
| *Pasteurized* | |
| *Top Milk* | |
| * CHEESES | |
| * BREAD | |
| Crust | |
| Fresh Baked | |
| Stale | |
| Toasted | |
| Pulled | |
| Zweiback | |
| White Flour | 1200 c. |
| Graham | |
| Rye | |
| Crackers | |
| Gluten | |
| Almond | |
| Inulin | |
| Soya | |
| Aleuronat | |
| * HOT CAKES | |
| * CEREALS | |
| Oat Meal | |
| Corn Meal | |
| Hominy | 1600 c. |
| Arrow-root | |
| Tapioca | 1650 c. |
| Cornstarch | 1820 c. |
| Farina | |
| Sago | |

| CEREALS—(Con'd.) | Daily amount |
|---|---|
| Macaroni | |
| Spaghetti | |
| Flaked Rice | 1620 c. |
| Cream of Wheat | 1680 c. |
| Force | |
| Grape Nuts | |
| VEGETABLES | |
| *Starchy | |
| Rice | 1620 c. |
| Corn | |
| Lima Beans | |
| Lentils | |
| Potatoes | 295 c. |
| *Baked* | |
| *Boiled* | |
| *Mashed* | |
| *Chipped* | |
| Sweet Potatoes | 440 c. |
| Beets | 160 c. |
| Parsnips | |
| Turnips | |
| Carrots | |
| Kohlrabi | |
| Artichokes | |
| Salsify | |
| Radishes | |
| Beans | |
| *Green Vegetables | |
| Tomatoes | |
| *Raw* | |
| *Stewed* | |
| *Baked* | |
| Egg Plant | |
| *Baked* | |
| Onions | 190 c. |
| *Boiled* | |
| *Baked* | |
| Leeks | |
| Cabbage | |
| *Sauerkraut* | |
| *Cole Slaw* | |
| Cauliflower | |
| Brussels Sprouts | |
| Sea Kale | |
| String Beans | 170 c. |
| Green Peas | 440 c. |
| Asparagus | |
| Pumpkin | |
| Squash | 100 c. |
| Celery | 65 c. |
| *Raw* | |
| *Stewed* | |
| Rhubarb | |
| Vegetable Marrow | |
| Spinach | 95 c. |
| Lettuce | 65 c. |
| Watercress | 65 c. |
| Beet Tops | |
| Okra | |
| Capers | |
| Cucumbers | |
| Endives | |
| Chicory | |
| Sorrel | |

| * SPECIAL. | Daily amount |
|---|---|
| Beef Juice | |
| Johnsons Fluid Beef | |
| Valentine Meat Juice | |
| Bovinine | |
| Clam Juice | |
| Scraped Beef | |
| Beef Tea | |
| Albumen Water | |
| Milk Toast | |
| Toast Water | |
| Barley Water | |
| Oatmeal Water | |
| Gruel | |
| Irish Moss | |
| Flaxseed Tea | |
| Slippery Elm Tea | |
| Milk Punch | |
| Egg Nog | |
| Koumiss | |
| Wine Whey | |
| Mulled Wine | |
| Panada | |
| Caudle | |
| Broth with Egg | |
| Plasmon | |
| Predigested Food | |
| * PASTRY | |
| * PUDDINGS | |
| Bread | |
| Cornstarch | |
| Blanc Mange | |
| Rice | |
| Tapioca | |
| Cup Custard | |
| Junket | |
| Cottage | |
| Hasty | |
| Suet | |
| Fruit | |
| * ICE CREAM | |
| Vanilla | |
| Chocolate | |
| Fruit Flavors | |
| * WATER ICES | |
| Orange | |
| Lemon | |
| Sherbets | |
| * CAKE | |
| Plain | |
| Fancy | |
| * JELLIES | |
| Lemon | |
| Wine | |
| Fruit | |
| * SUGARS | |
| Cane Sugar | 1750 c. |
| Grape Sugar | |
| Honey | |
| Molasses | |
| Confectionery | |
| Saccharine | |
| Levulose | |
| Milk Sugar | |

| * FRUITS | Daily amount |
|---|---|
| Fresh | |
| Dried | |
| Stewed | |
| Preserved | |
| Baked | |
| Oranges | |
| Lemons | |
| Limes | |
| Shaddocks | |
| Grapes | |
| Bananas | |
| Pineapples | |
| Melons | |
| Apples | |
| Peaches | |
| Pears | |
| Plums | |
| Prunes | |
| Apricots | |
| Cherries | |
| Raisins | |
| Dates | |
| Figs | |
| * BERRIES | |
| Strawberries | |
| Blackberries | |
| Raspberries | |
| Huckleberries | |
| Gooseberries | |
| Cranberries | |
| Mulberries | |
| Currants | |
| * NUTS | |
| Cocoanuts | |
| Chestnuts | |
| Walnuts | |
| English Walnuts | |
| Brazil Nuts | |
| Hazel Nuts | |
| Pecan Nuts | |
| Shellbarks | |
| Salted | |
| Almonds | |
| Peanuts | |
| * Olives | |
| Pickles | |
| Truffles | |
| Mushrooms | |
| * BEVERAGES | |
| Non-Alcoholic | |
| Coffee | |
| Tea | |
| Cocoa | |
| Chocolate | |
| Coffee Substitute | |
| *Name:* | |
| Lemonade | |
| Grape Juice | |
| Ginger Ale | |
| Soda Water | |
| Mineral Waters | |
| *Label:* | |

| * ALCOHOLIC | Daily amount |
|---|---|
| Beer | |
| Ale | |
| Porter | |
| Stout | |
| Cider | |
| Sherry | |
| Port | |
| Madeira | |
| Malaga | |
| Tokay | |
| Rhine Wines | |
| *Label:* | |
| Champagnes | |
| *Label:* | |
| Clarets | |
| *Label:* | |
| Burgundies | |
| *Label:* | |
| Whiskies | |
| *Label:* | |
| Brandies | |
| *Label:* | |
| Gin | |
| *Label:* | |
| Liqueurs | |
| * CONDIMENTS | |
| Pepper | |
| Mustard | |
| Spices | |
| Herbs | |
| Vinegar | |
| Olive Oil | |
| Horseradish | |
| Sauces | |
| Caviare | |
| Pâté de Foie Gras | |
| Salt | |
| * FATS | |
| Bone Marrow | |
| Cod Liver Oil | |
| Olive Oil | 3600 c. |
| Emulsion of Fats | |
| Cream, 20% | 865 c. |
| Butter | 3410 c. |
| * WATER | |
| Hot | |
| Cold | |
| Spring | |
| Distilled | |
| Filtered | |
| Boiled | |
| * SALADS | |

| BREAKFAST | Daily amount |
|---|---|
| 1 cup tea | |
| Bread, 4 oz. | 300 c. |
| Butter, 1 oz. | 213 c. |
| Beef, 1-4 lb. | 227 c. |
| Hominy, 4 oz. | 410 c. |
| | 1150 c. |
| FORENOON LUNCH | |
| Milk, 8 oz. | 155 c. |
| LUNCH | |
| Milk, 8 oz. | 155 c. |
| Butter, 1 oz. | 213 c. |
| Bread, 4 oz. | 300 c. |
| Chicken, 4 oz. | 191 c. |
| Rice, 4 oz. | 406 c. |
| Spinach | |
| | 1265 c. |
| AFTERNOON LUNCH | |
| Milk, 8 oz. | 155 c. |
| DINNER | |
| Bread, 4 oz. | 300 c. |
| Butter, 1 oz. | 213 c. |
| Beef 1-4 lb. | 227 c. |
| Potato 2 oz. | 37 c. |
| Rice, 4 oz. | 406 c. |
| Custard | |
| | 1183 c. |
| EVENING LUNCH | |
| Milk, 8 oz. | 155 c. |

DIRECTIONS: A double ** signifies that all articles down to the next * are permitted. Individual articles in any list underscored are allowed; all not designated are forbidden. Heat units given are for a pound of the food indicated.

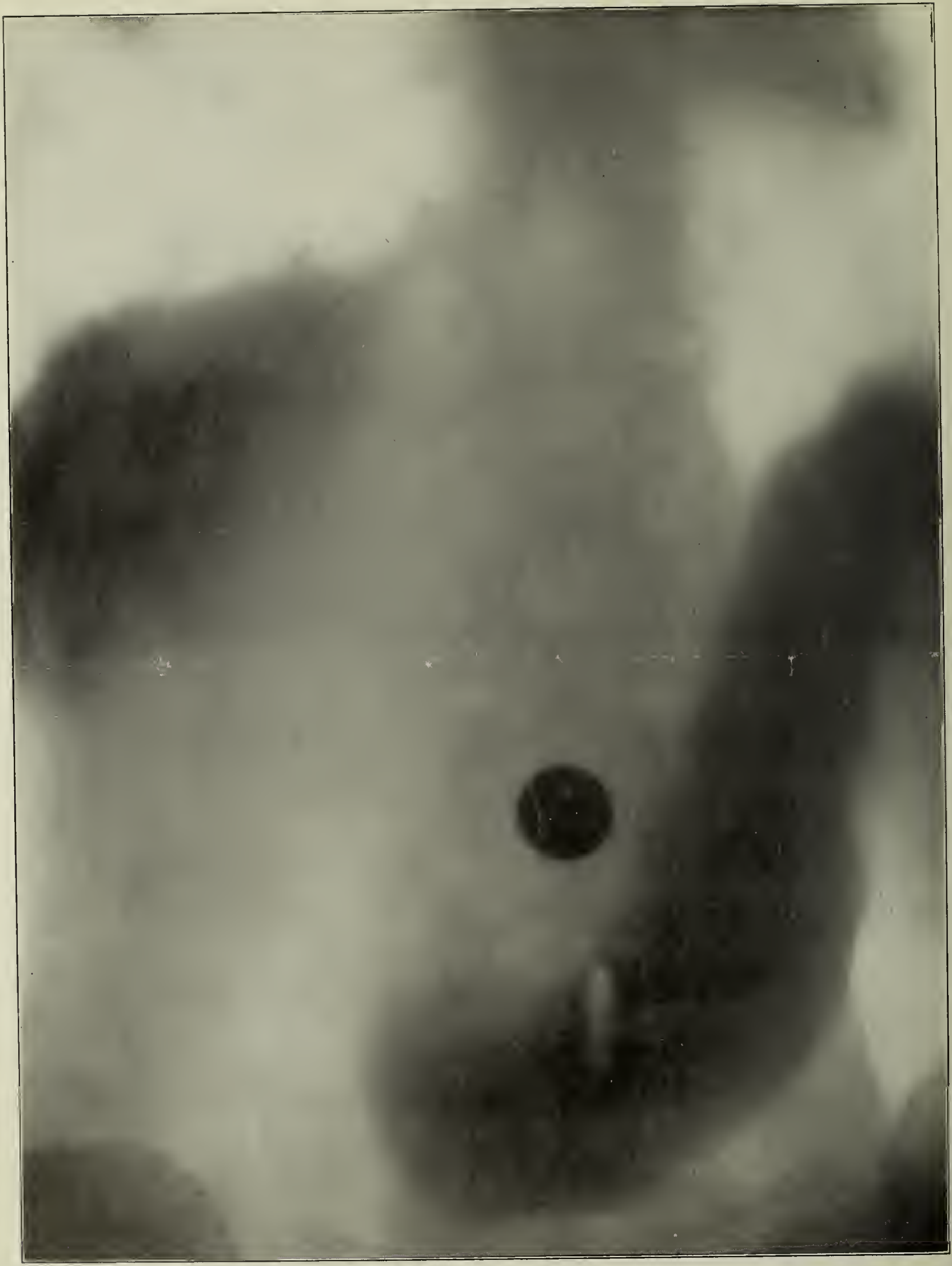

Fig. 1. Radiograph of the stomach before operation taken in the recumbent position. In the erect posture the lower border [illegible] the stomach disappears below the brim of the pelvis.

Rovsing (suture of the stomach to the parietal peritoneum).

Hartman (suture of the pylorus to the abdominal wall after plication of the gastrohepatic omentum).

Coffey (suture of the greater omentum to the abdominal wall below the colon).

Webster (approximation of the recti-muscles).

Beyea and Bier.

The two last named surgeons shorten the gastrohepatic and gastrophrenic ligaments, the difference consisting only in a variation of the method of applying sutures. Their technic seems the most satisfactory, as it does not create an abnormal fixed point.

Beyea's original article, published in the *Philadelphia Medical Journal,* 1901, 1, p. 257, is worthy of study. He reports three cases of his own and four operated on by Bier. In summing up his paper Beyea says: "The completeness of the relief and to my mind the extraordinary restoration to health of these seven patients, who had suffered for years, the simplicity of the operation (which restores the stomach to normal position by shortening of its natural ligaments without removal of tissue or formation of abnormal adhesions), and the fact that it is practically free from danger (estimated at one-quarter of one per cent.) must strongly recommend this operation, at least, in every case of gastroptosis in which the suffering is great. The mechanical treatments at best procure only partial relief of symptoms, but do not restore the position of the stomach (the cause of the illness) and entail constant treatment, diet and wearing of cumbersome bandages, while the operation promises at once to completely and permanently restore the patients to health."

It does not seem wise to accept unreservedly his fascinating conclusions, for certainly the cases of moderate gastroptosis do very well on the treatment outlined above and, moreover, there are cases in which, owing to faulty development of the lower thoracic region, the liver occupies the upper abdomen almost completely, forcing the stomach downward.

In one of my cases it was impossible to improve the position of the stomach and the patient appears to have been made worse by operation.

The case which I take the liberty of presenting shows in a typical way the benefit sometimes derived from the Beyea operation. Her history is as follows:

Annie C., married, aged fifty-six, Irish, housewife, presented herself for treatment in November, 1908.

Family History: Mother died at thirty-seven of Bright's disease. Father died at thirty-eight of consumption.

Previous History: Patient has had five healthy children, one miscarriage, one stillbirth. Labors were normal and not unduly difficult. Menses regular until menopause at age of fifty. Fourteen years ago, she developed acute articular rheumatism. She was given very strong medicine, which affected digestion and was followed by diarrhea which lasted for several months. She has been an excessive user of tea and a moderate consumer of alcohol. Two years ago, she was operated on for rectal prolapse, but with only temporary relief of constipation, for which it was performed.

Present Condition: Her illness began five years ago with diarrhea, which lasted from four to six weeks, and when that was checked, she commenced to belch gas and became very much constipated. She had no pain and no vomiting, but her appetite was poor and she gradually lost flesh. She felt bloated, heavy and drowsy after meals, had a great deal of gas in the stomach and bowels, and frequently passed large quantities of mucus. She was nervous, could not sleep, had vertigo and severe palpitation (often so bad that she thought she was dying), became melancholic and had thoughts of suicide.

Five years ago she weighed 150 pounds. At the time of my first examination her weight was 103 pounds.

Physical Examination: General condition poor. Tongue moist, coated; teeth, Rigg's disease. Heart, some hypertropy, over-acting. Lungs, negative. Liver, very slightly prolapsed. Spleen, normal. Right kidney, palpable and movable.

The stomach extended from the eighth rib to two fingers' breadth above the pubes, the position being a combination of true gastroptosis and lateral displacement.

Test Meal: Mucus, considerable. Expressed contents, 50 c.c. Residual contents, 150 c.c. Free hydrochloric acid, 42. Total acidity, 74. Organic acids, trace of butyric. Starch digestion, diminished. Duration test, positive. Water test, positive. Fasting test showed slight solid food residue.

Examination of urine: Sp. gr., 1,030, amber, acid. Albumin, trace. Sugar, none. Casts, absent.

The usual routine treatment was undertaken, the stomach being washed out to get rid of mucus and products of fermentation, and alkalies and belladonna were given for the acid condition.

It was found impossible to increase the diet up to the needs of nutrition, as every such attempt resulted in increased fermentation, belching of gas and diarrhea.

For two years the patient was seen at intervals, gradually losing flesh until she weighed 86 pounds.

She entered Gouverneur Hospital in July, 1910, and on the 16th of that month, I performed a modified Beyea operation. The notes of the operation are as follows:

Five-inch incision to the left of the median line. Stomach exposed and found in the position described above, the transverse colon being crowded down below it into the left iliac fossa. The gastrohepatic omentum was atrophied so that it had the appearance of a thin veil.

Patient was placed in Trendelenburg position, the liver retracted upwards, and several rows of No. 2 chromic catgut sutures were inserted, catching the serous coat of the stomach and puckering the omentum above, until the stomach was drawn well up under the liver, after which the abdomen was closed without drainage.

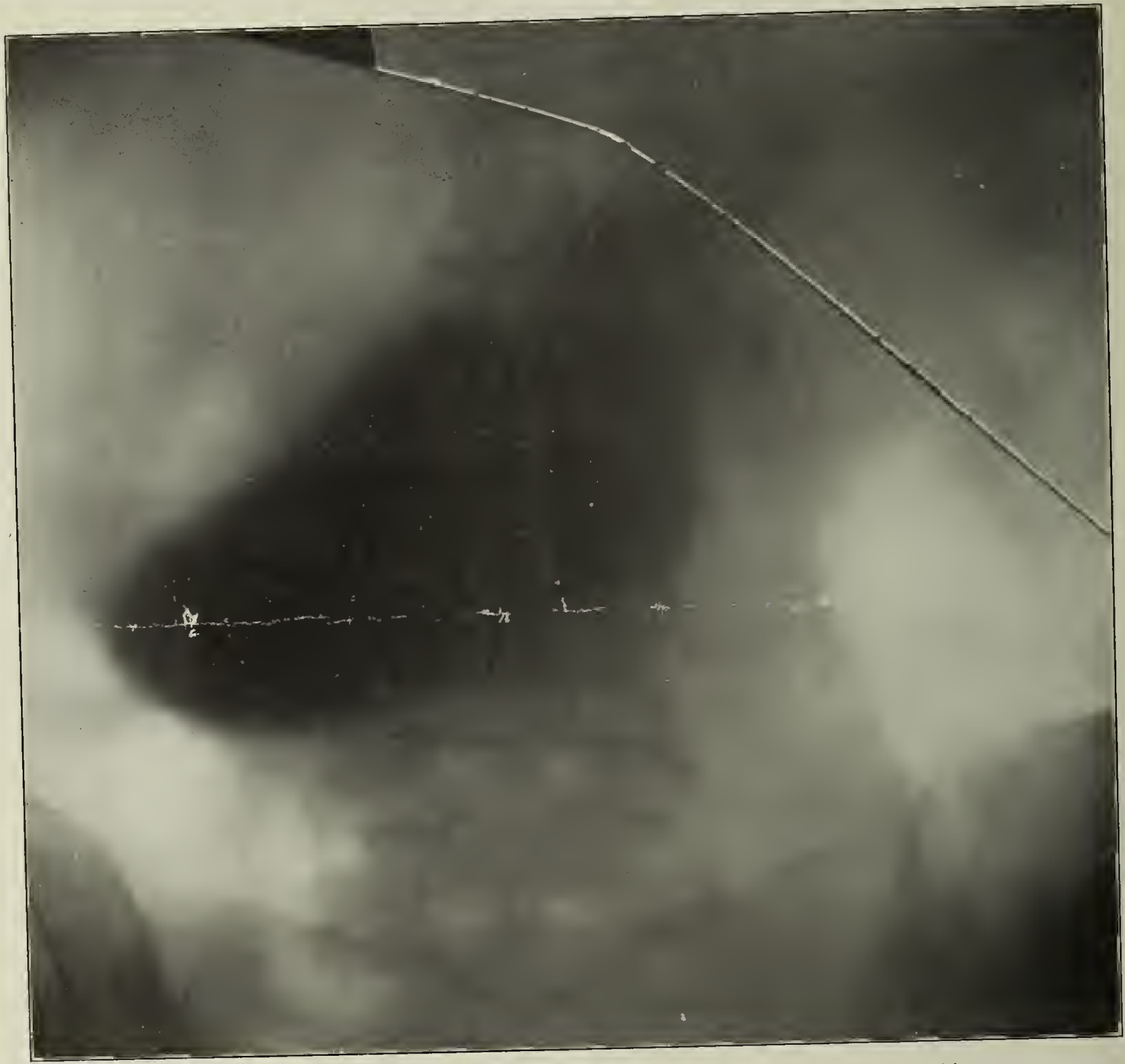

Fig. 2. Radiograph of the stomach one month after operation, taken in the erect position.

The x-ray pictures show the position of the stomach before and after operation.

Convalescence was uneventful, and on July 27th the patient reported that she was passing well-formed stools which she had not done before for years. She was discharged from hospital August 3rd, free from all symptoms. Her appetite was good, and she was gaining in weight.

On February 20, 1912, examination shows that she weighs 142 pounds (a gain of 56 pounds).

Analysis of stomach contents: Mucus, moderate amount. Total acidity, 68. Free HCl, 26.

Urine: Yellow, alkaline, sp. gr., 1,012. Albumin, trace. Sugar, none. Indican, trace. Casts, none.

There has been no return of symptoms and she is engaged in active work (a cleaning woman).

Not the least interesting of the results is the complete relief of the mucous colitis and restoration of normal heart action.

†[P.S. Dr. A. Robin, *International Medical Magazine,* December, 1900, described an approximate quantitative test for indican which is useful, simple and sufficiently accurate. It is as follows:

Prepare the following solution:

1. Obermeyer's reagent—Ferric chloride, 2 gm., hydrochloric acid C. P., 1000 c.c.

2. Solution of lead acetate 25 per cent.

3. Solution of potassium chlorate, containing 1 per cent. available chlorine, or 34.6 gm. of the salt per liter.

To 10 c.c. of urine add 1 c.c of lead acetate solution and filter through a double filter.

Put 5 c.c. of the filtrate into a test tube, add 5 c.c. of Obermeyer's reagent and 2 c.c. of chloroform, and invert the test tube about ten times or until the color of chloroform ceases to become more intense. The latter will assume a violet or blue color according to the amount of indican present.

Add from a dropper the potassium chlorate solution drop by drop, shaking the mixture after each addition, until the blue color of the chloroform disappears.

The potassium chlorate liberates chlorine in the presence of a strong mineral acid and oxidizes the indigo formed by the addition of Obermeyer's reagent.

If the amount of indican is normal, one or two drops will cause decoloration.

In making your memorandum, mark down: decolorized by x drops $KClo_3$ solution.

This test has been found so helpful that it has been given in detail.]

Read before the Polyclinic Clinical Society.